The sky's the limit — practically — with Cielo

New supercomputer 10 times faster than current NNSA platform

By Neal Singer

Sandia and Los Alamos National Laboratory (LANL) researchers have jointly awarded a contract to Cray Inc. to build a supercomputer that will have more than 10 times the capability of NNSA's current platform — the Purple supercomputer at Lawrence Livermore National Laboratory (LLNL).

The machine will support computations at Sandia and LANL, as well as at LLNL.

This increased capability is expected to increase understanding of complex physics and improve confidence in the predictive capability of stockpile stewardship.

"Cielo will target extremely large problems that require petascale supercomputing," says Sudip Dosanjh (1420), codirector of ACES (Alliance for Computing at Extreme Scale), a New-Mexico based partnership between Sandia and LANL. "This is the culmination of a two-year collaborative effort. We look forward to working with Cray to create an order-of-magnitude increase in capability for key NNSA national security applications."

Because Cielo will be dedicated to running the largest and most demanding workloads involving modeling and simulation, it will support large single jobs capable of utilizing the entire platform.

This increased capability is expected to increase understanding of complex physics and improve

(Continued on page 6)

Tom Hunter on leadership

"Providing the right opportunities and experiences for our management incorporates two of our key themes for the future — leadership development and a focus on being one laboratory."

— Labs Director Tom Hunter

Leadership development at Sandia is not just about creating the next manager or director. It is a much broader proposition that delivers outstanding leaders who serve the national security interests of the nation.

See the story beginning on **page 4.**

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Sandia LabNews

Vol. 62, No. 6 April 9, 2010

Sandia National Laboratories

Managed by Lockheed Martin for the National Nuclear Security Administration

Sandia's 2010 Strategic Plan spells out future Labs directions

"Strategic Thrusts" described in brief online videos

By John German

So where are we headed as a laboratory, and how is Sandia's mission changing?

Not easy questions to answer in these turbulent times, says Peter Davies, director of Institutional Development Center 12100. "Our environment is in flux," he says. "Rapidly evolving national security threats, coupled with major political, fiscal, and operational transitions, mean Sandia's mission and operational directions need to be reassessed periodically," he says.

Sandia's FY2010 Strategic Plan, a concise 20-page

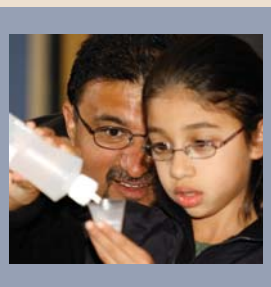
(Continued on page 6)

"Our environment is in flux. Rapidly evolving national security threats, coupled with major political, fiscal, and operational transitions, mean Sandia's mission and operational directions need to be reassessed periodically"

— Peter Davies, director Institutional Development Center 12100

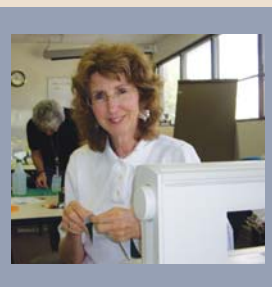
After consequential 35+ years, Sandia Executive VP Joan Woodard retires

Executive VP Joan Woodard is moving on from Sandia to pursue another phase of life interests. She surprised many Sandians with her retirement announcement on Feb. 10. According to an editorial in the March 11 *Albuquerque Journal*, "Sandia National Laboratories is losing a valuable asset with the retirement of Joan Woodard in May." Says colleague Paul Hommert, deputy Labs director for Nuclear Weapons, "For me, Joan epitomizes dedication to Sandia's role in national service and a strong desire for the Lab to impact the nation's broader national security challenges." Read more about Joan's career and plans for the future in a story on **page 15.**



COMMUNITY INVOLVEMENT

A special four-page section beginning on page 7



That's that

I called her the little sweetheart. There was a touch of affectionate irony there; if she didn't get her way, she could be, well . . . mean. But now that she's gone, I only think of the sweet parts, not the mean ones. She was a wonderful friend and companion. Yesterday (as I write this) our beloved family cat Moxie was killed by two dogs that had gotten loose from somewhere and were wandering around the neighborhood, looking for trouble. I didn't see Moxie's last stand, but knowing Moxie — she didn't get her name for nothing — I'll bet trouble is what those dogs got, and plenty of it, before the two of them finally took her down. She was, as my daughter said, a brave girl.

Moxie was almost exactly seven years old. We had expected to have her with us for at least another 10 years, but that wasn't to be. Just that morning she had been so happy. As I went out to the car for work, she was rolling, rolling, rolling in her favorite sunny spot in our front flowerbed. Then, in just a heartbeat, a wink, she was gone. Gone with a finality that sucks the breath out of you.

When I was a little kid I went to Catholic school. In second grade my teacher, Sister Immaculata, explained to us that the difference between human beings and animals was that animals didn't have souls. I can even remember myself, a smarty-pants little know-it-all, telling my younger brother and sister that Midge, our family dog, couldn't go to heaven because of that. But today, I know better. No soul? I don't believe it. Not for a second. Not a bit of it.

* * *

. . . But the day we lost Moxie was the first day I walked out of the house with just a short-sleeved shirt. No sweater or jacket. It was the first day our ornamental pear tree blossomed. It was the day I noticed that I'd have to mow the lawn soon. There's that one day every year when you feel everything coming back to life. That one day when your heart swells just a bit and you think, 'What a wonderful world." That's how it was the day we lost Moxie.

* * *

Four million dollars to United Way. Sixty science nights reaching 6,000 kids. Professional development opportunities for teachers. School supplies drives. Food drives. Book drives. $19 million in corporate contributions from Lockheed Martin since 1993. And volunteers, volunteers, volunteers. The center four pages of this issue focus on Sandia's long-standing involvement in the community. Ever since our founding more than 60 years ago now, we have taken a very justified and well-earned pride in our service to the nation. As the stories and photos and other information in our center spread suggest, we can and should taken equal pride in the service we've provided in our community.

* * *

Last week as I was walking from my office just outside Tech Area 1 (Bldg. 811) to a meeting right in the very center of Tech Area 1, I wondered: What's the longest theoretical walk a Sandian has to make each day to get from car to office? Has anyone ever figured that out? And how far from everything else is the farthest remote site that Sandians work at every day? Probably someplace out in Tech Area 3 or Coyote Canyon. The folks who work out in some of those remote sites have workdays that, when you add the commuting time in, are probably at least an hour longer than mine. I live three miles down the road and have the luxury of parking my car right outside my office.

* * *

In our March 26 issue we ran a story about the Sandia-developed Multispectral Thermal Imager — the MTI — satellite marking its 10th year of service and its 55,000th orbit. We were marveling over the reliability of the satellite — which was designed for a three-year mission — and at the ingenuity of the team that manages it. They've done several repairs and upgrades to the satellite (via uploaded software) over the years and MTI just keeps on keepin' on. Darrick Hurst, who wrote the story, commented, "Maybe those folks ought to be building cars." Absolutely. I'd buy a Sandia-branded car in a heartbeat.

See you next time.

— Bill Murphy, (505-845-0845, MS0165, wtmurph@sandia.gov)

Sandia's Health, Benefits, and Employee Services (HBE) invites you to:

SAVE THE DATE

Monday, April 26, 2010

11:30 a.m. — 12:30 p.m.

UNM Continuing Education Conference Center

1634 University NE, Albuquerque, NM

2011 Retiree Healthcare Benefits Presentation for Sandia Employees and Family!

We understand that decisions concerning retirement are never easy. That's why Sandia HBE is holding this informational presentation and inviting all **non-represented employees** considering retirement in 2010 to join us along with their spouses and significant others who can assist them in the decision-making process.

Bring your family members and significant others to learn more about the changes to Sandia's retiree health care benefits in 2011.

Health Benefits Employee Services HBE

Your Health. Take Charge.

For more information contact HBE Customer Service - 505-844-HBES (4237)

TAKE OUR daughters and sons TO WORK® 2010

MS. FOUNDATION FOR WOMEN

NM Take Our Daughters & Sons to Work Day

(Photo by Amanda Montoya)

Take Our Daughters & Sons to Work Day will be held April 22. Sandia employees and contractors can invite children to visit their workplace to learn more about their hosts' work and Sandia's mission. This can also be an avenue to encourage students to pursue science, technology, engineering, and math careers. Children in grades 5-12 are invited to attend and guests can include children, relatives, or friends. Registration is required for all guests. Management approval is required.

Visit the website to view lists of scheduled activities, safety and security requirements, and to download the registration form.

http://info.sandia.gov/todtwd/

A NEW generation AT work

Retiree deaths

Ramona E. Andersen (age 83)	Feb. 7
Eldon Dewain Brandon (71)	Feb. 8
L.E. Williams (94)	Feb. 9
Edward D. Stout (85)	Feb. 11
Martha A. Leverenz (90)	Feb. 17
Jesus M. Silva (81)	Feb. 19
George M. Austin (94)	Feb. 19
Sanders Robert Dolce (78)	Feb. 21
John L. Colp (89)	Feb. 23
Paul Baca (80)	Feb. 24
Nat H. Youngblood (61)	Feb. 28
Milton E. Bailey (92)	March 6
David Allan Mayhew (83)	March 6
Wallace E. Newman (76)	March 9
Robert L. White (64)	March 14
W.J. Rogers (78)	March 15
Arthur J. Clark (88)	March 19
Violet N. Barela (84)	March 25

Sandia LabNews

Sandia National Laboratories

http://www.sandia.gov/LabNews

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Ground broken on Combustion Research Computation and Visualization building

By Patti Koning

More than 20 years ago, then-director of the Combustion Research Facility (CRF) Peter Mattern had a vision for a complex that would include both experimental labs and a facility dedicated to predictive modeling and simulation. On March 24, that dream started to take shape as reality as the first mounds of dirt were moved at a groundbreaking ceremony for the Combustion Research Computation and Visualization (CRCV) building.

"People have had this vision for a while, recognizing the need to develop predictive simulation as a way to move forward because you can't measure everything," said CRF director Bob Carling (8300). "Technology and innovation must evolve more rapidly than through experiments alone in order to meet our energy goals. Predictive modeling is a key enabler for the transportation industry, so this new computational facility will be an integral part of our efforts."

THREE CRF DIRECTORS join forces to break ground on the Combustion Research Computation and Visualization building. From left to right, Rick Stulen, CRF Director Bob Carling, Andy McIlroy, Art Pontau, Peter Mattern (past CRF director), Bill McLean (past CRF director), Dawn Manley. (Photo by Randy Wong)

He credited Andy McIlroy (1800), acting director for Materials Science and Engineering, and acting senior manager Dawn Manley (8350) with putting together the vision for the CRCV and seeing the project through to the end.

Cofunded by DOE's Office of Science and Office of Energy Efficiency and Renewable Energy, designed by Flad Architects, and under construction by BN Builders, the 8,400-square-foot facility will offer offices, visualization equipment, collaboration space, and 2,000 square feet of dedicated space for high-performance computing clusters (see *Lab News*, Aug. 28, 2009). Construction should be complete by the end of the year.

The CRCV facility will support high-fidelity numerical simulations and the building and testing of models that require highly intensive computational capabilities. Simulations will include first-principles direct numerical simulations of turbulent flames, which allow for the examination of fine-scale coupling between turbulence and chemistry interactions. Large eddy simulations will enable modeling of the entire engine intake and combustion chamber, as well as the smaller-scale transport and chemistry issues.

Div. 8000 VP Rick Stulen welcomed guests from DOE, Sandia/New Mexico, and the city of Livermore to the groundbreaking ceremony. Also in attendance were two former CRF directors, Peter Mattern and Bill McLean.

"The Combustion Research Facility represents a phenomenal partnership between very fundamental science and applied science, one that has lasted over 25 years and is unique within the national laboratories," said Rick. "It is this combination that makes this a very special place."

He described the predictive modeling and simulation capabilities of the CRF as essential to help meet the challenges laid down by President Obama: an 80 percent reduction in CO_2 emissions by 2050 and a 25 percent reduction in the consumption of liquid petroleum. This was a theme that the other speakers carried through their talks.

"For a long time we've recognized that the path to success is through truly predictive combustion models," said Eric Rohlfing, director of chemical sciences, geosciences, and biosciences for DOE's Office of Basic Energy Science. "As much as it pains me to say this as an experimentalist, we'll never measure everything. We need to come up with ways to understand the details and complex interplay between turbulence and chemistry in modern engines with new fuels. I'm delighted that we've been able to partner with our colleagues in the vehicle technology program to provide the funding for this building."

ARCHITECTURAL RENDERING of the new Combustion Research Computation and Visualization (CRCV) building. (Rendering courtesy of Flad Architects)

CRCV is not just a new facility at the California site, it also represents a new way of managing construction for Sandia. Dan Sanchez, an NNSA/Sandia Site Office (SSO) senior manager, spoke about the new oversight model that gives Sandia more control. He likened the change to a parent giving up car keys to a teenager.

"We are taking a backseat approach while providing guidance and all of the support that Sandia needs to be successful in this particular project," he said. "This new oversight process is a reflection of our confidence at SSO in Sandia's abilities to manage a large construction project."

Joining Rick to wield the shovels at the groundbreaking were CRF director Bob Carling (8000); Andy; Dawn; senior manager Art Pontau (8360); Bill; Peter; Sanchez; Rohlfing; Gurpreet Singh, team leader for the advanced combustion engine technologies vehicle technology program; Livermore Mayor Marshall Kamena; city manager Linda Barton; Mike White, the director of economic development for the city of Livermore; John Mickow and Andrew Slusser of Flad Architects; and Mike Anderson and Paul Gryfakis of BN Builders.

Sandia CaliforniaNews

Fuel cell–powered mobile lighting system deployed at Academy Awards

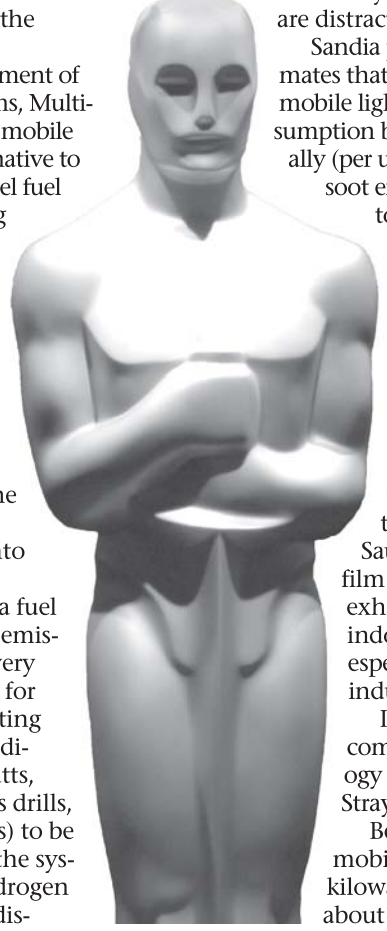
By Mike Janes

A team led by Sandia National Laboratories made a cameo appearance at the 82nd Annual Academy Awards ceremony in Los Angeles. The fuel cell-powered mobile lighting system, introduced in the Oct. 23, 2009, issue of *Sandia Lab News*, shed a little environmentally friendly light on the festivities.

Sandia, Boeing, the California Department of Transportation (Caltrans), Altergy Systems, Multiquip, Inc., and others developed a novel mobile lighting system as a clean, efficient alternative to traditional technologies powered by diesel fuel generators. These small, portable lighting systems are used primarily by highway construction crews, airport maintenance personnel, and film crews.

During the night of the Academy Awards ceremony, the unit provided lighting at an access point used by media and production personnel to the famed red carpet area, and also provided auxiliary power for a security metal detector. The unit was used in the days leading up to the event for construction of the red carpet that leads into the Kodak Theatre.

The new prototype system features a fuel cell running on pure hydrogen, a zero-emission electric power source that is also very quiet. The fuel cell produces electricity for an advanced, power-saving Light Emitting Plasma™ (LEP) lighting system and additional auxiliary power up to 1.5 kilowatts, which allows some equipment (such as drills, power tools, or security metal detectors) to be powered by the unit at the same time the system is providing illumination. The hydrogen was purchased from Air Products and dispensed from the company's hydrogen refueling trailer.



By comparison, current mobile lighting uses diesel fuel generators that produce CO_2, NO_x (nitrogen oxides produced during combustion), and soot (particulate matter), making them less than ideal for the environment. In addition, diesel units are noisy and can create a safety hazard when construction personnel are distracted and cannot hear oncoming traffic.

Sandia project lead Lennie Klebanoff (8367) estimates that the deployment of a fuel cell-based mobile lighting unit could reduce diesel fuel consumption by nearly 900 gallons of diesel fuel annually (per unit), while also eliminating the NO_x and soot emissions produced by diesel fuel generators. If the hydrogen used in the lighting system is generated from nonfossil fuel sources, then the replacement of a single mobile unit would reduce CO_2 emissions by about nine metric tons per year.

Russell Saunders, whose company, Saunders Electric, Inc., has been providing temporary power facilities for the Academy Awards since 1953, says working with the mobile fuel cell lighting unit has been a positive experience due to its ease and flexibility. According to Saunders, the fact that the system meets film production sound levels, maintains zero exhaust emissions, and can be used both on indoor and outdoor film shoots makes it especially appealing for the entertainment industry.

In addition to the fuel cell, another key component of the system is the LEP technology contributed by Luxim, Lumenworks, and Stray-Light Optical Technologies.

Before this technology was introduced, mobile lighting units typically consumed 4.4 kilowatts. The LEP system only consumes about 2.3 kilowatts for the same light output, a reduced power requirement that saves energy and increases the system duration (operational time between refills). Because LEP uses approximately half the energy of standard systems, it further increases the efficiency of the fuel cell-powered system. This makes it a zero-emission electric power source.

The system incorporates two pressurized hydrogen tanks (purchased by Sandia from Structural Composites, Inc.), a trailer with an enclosure that houses the hydrogen tanks and fuel cell (provided by Multiquip), and a 5-kilowatt fuel cell (provided and installed by Altergy Systems). Multiquip and Altergy assembled the overall unit, while Sandia oversaw the design and technical plan.

In addition to the film industry, the project has also attracted the interest of San Francisco International Airport (SFO) for airport maintenance work and Caltrans for nighttime highway construction. Unlike the diesel systems that traditionally power mobile lighting units, the fuel cell-powered mobile light can be used indoors. SFO plans to use the technology in its indoor terminal maintenance work.

Boeing provided original seed funding to build the prototype unit. A unit for SFO will incorporate a more sophisticated, technically ambitious hydrogen storage system that uses metal hydride storage tanks designed by Ovonic Hydrogen Systems.

Sandia's work on a fuel cell-powered mobile lighting system reflects the Labs' long history of exploring basic science for energy and transportation. From developing renewable means of producing hydrogen, to discovering the science behind hydrogen safety, to creating the building blocks of hydrogen and fuel cell systems, Sandia scientists and engineers are actively working to help hydrogen and fuel cells take their place in a sustainable energy future.

Additional funding sources are being sought so that more fuel cell-powered mobile lighting systems can be refined, built, and deployed, reducing both diesel consumption and emissions. The ultimate goal is to displace diesel fuel-powered systems altogether.

LEADERSHIP

Planning for Sandia's — and the nation's — future

By George Rhynedance
Director, Public Relations and Communications Center 3600

Leadership development at Sandia is not just an effort that is focused on creating the next manager or senior manager or director for the Labs. It is a much broader proposition that delivers outstanding leaders who serve the national security interests of the nation.

"Providing the right opportunities and experiences for our management incorporates two of our key themes for the future — leadership development and a focus on being one laboratory," says Sandia President and Labs Director Tom Hunter. "We believe in creating leaders for the national security community. And we have been doing it successfully for a number of years."

Supporting that responsibility, the Sandia leadership team takes a hands-on approach to developing leaders — across the Labs and especially with senior managers and directors.

What is the rationale behind the leadership moves we regularly see in the Labs?

Why do directors rotate to new jobs? How do people prepare to take on bigger leadership roles at Sandia? To understand these issues, one has to understand the strategies Sandia has been putting in place to ensure a strong bench of leaders for the future. Historically, leaders emerged from our ranks somewhat naturally. People developed primarily through new experiences when others moved on to new roles or retired. While this may have worked for us in the past, because our world and our workforce are changing, this natural development of the next leader is now too passive for our needs. "We determined we needed a much richer and diverse leadership experience that included many aspects of the Labs, an experience that eliminated insular perspective and narrow stovepipes," says Tom.

"We determined we needed a much richer and diverse leadership experience that included many aspects of the Labs, an experience that eliminated insular perspective and narrow stovepipes."

The purpose of this article is to explain Sandia's strategies for accelerating the development of our future leaders, and to describe the leadership journey Sandia has undertaken for the last few years.

Sandia always strives to be a model for leadership development in the national security community. As we continue to learn and apply how to better develop leaders, we are making an aggressive journey of continuous improvement, a journey that is one of the enduring key elements of our ongoing Labs transformation.

"A successful leader here has to span the stovepipes. It's our leaders' expertise and experience that adds to the value and bench strength of the Labs future leadership."

Creating a bench in a rapidly changing world

While leadership development happens at all levels of the Laboratories, it is largely from the director level that the next group of potential vice presidents emerges. In fact, with only a few exceptions, vice presidents currently serving at the Labs came from the director ranks.

"We focus leadership development for directors on creating the next set of vice presidents," says Tom. These developmental experiences at the Laboratories cause them to become the leaders that the nation and even the world turn to for solutions to difficult and complex national security challenges. Sandians are sought by government, industry, and peers for their expertise, and ability to cut through red tape and stovepipes to get important things done for the nation.

"A successful leader here has to span the stovepipes," says Tom. "It's our leaders' expertise and experience that adds to the value and bench strength of the Labs' future leadership."

Broadly experienced leaders also create confidence among our colleagues at other labs, at the Department of Energy, at the National Nuclear Security Administration, and with other critical customers and stakeholders. We must always guard against complacency and should continually get better at developing leaders. One important developmental aspect is external exposure.

"It's important to create a mechanism to allow Sandia leaders to come and go freely and safely," says Tom. "We have to continue to serve in leadership positions outside of Sandia, in Washington, in professional societies, and at colleges and universities."

(Continued on next page)

Leadership at VP ranks has undergone many changes

Over the past few years, Sandia's VP ranks have undergone numerous changes. As Tom Hunter pointed out in an interview in July 2009, the changes are part of a deliberate path to match the skills of Sandia's executives to the needs of the Laboratories. Tom also noted that the changes are based on a key theme of his, which is "strengthening the leadership engine and developing the strength of the leadership team to have a broader set of experiences, a broader engagement across the Laboratory."

Said Tom, "We want our vice presidents to be much more engaged in high-level customer interaction, more engaged across the Laboratory, and planning the Laboratory's future. As a consequence, we have changed the structure of the divisions so they have a broader and a deeper program structure, and that requires fewer vice presidents, although each will need to take a much broader and bigger role."

Here's a recount of Sandia's leadership changes at the vice president level in the recent past, with many of the changes occurring over the past year:

- Rick Stulen moved from VP of Science & Technology and Research Foundations Div. 1000 to VP of California Laboratory Div. 8000.
- Steve Rottler, previously VP of Weapon Engineering & Product Realization Div. 2000, moved to Div. 1000 VP.
- Carolyne Hart, previously director of Electronic Systems Center 5300, has been named VP of Div. 2000.
- Les Shephard, previously VP of Energy, Security and Defense Technologies Div. 6000, has retired from Sandia.
- Jill Hruby, previously director of Homeland Security and Defense Systems Center 8100, has been named VP of Div. 6000.
- Joan Woodard, Executive VP and Deputy Director for National Security Technologies and Systems, retired from Sandia at the end of March.
- Mike Hazen was appointed VP for Infrastructure Operations, Div. 4000.
- Joe Polito was appointed VP for Enterprise Transformation, Div. 9000.
- John Slipke was appointed VP for Human Resources and Communications, Div. 3000.
- Matt O'Brien was appointed VP and Chief Financial Officer, Div. 10000.
- Paul Hommert was first appointed VP of Sandia's California Laboratory in 2006. Later appointed Executive VP and Deputy Director for the Nuclear Weapons Program, Div. 0002
- Al Romig was appointed Executive VP, Deputy Director, and Chief Operating Officer, Div. 0003.
- Lenny Martinez, former VP for Manufacturing Systems, Science & Technology and later Enterprise Transformation, retired from Sandia in 2009.
- Jim Tegnelia, VP, Department of Defense Programs, retired from Sandia in 2009.

DEVELOPMENT

(Continued from preceding page)

Developing expectations for our leaders

Given our rapidly changing world, leadership development is very important to our Laboratories' future and was first defined as a corporate strategic issue in 2006. In 2008, the Leadership and Management Development Strategic Issue team developed a "Sandia Leadership Brand" focused on three key elements — delivering results, building relationships based on trust, and personal commitment to national security. This team also developed a detailed set of roles and responsibilities for various levels of Sandia management that linked to the Full Spectrum Leadership (FSL) framework. This has been supplemented with new policies and programs to identify, cultivate, and develop Sandia's future leaders and managers.

The Full Spectrum Leadership (FSL) framework helps define and set expectations for our leadership team. The framework defines five key competencies that leaders must possess or develop to be successful in today's environment. These imperatives include the ability to shape the future, deliver results, energize teams, build effective relationships, and model personal excellence, integrity, and accountability. It is important to note that FSL defines the behaviors that align with, and support Sandia's Leadership Brand.

In a recent interview, Tom Hunter was asked what he would tell a developing leader are the most important things he or she could do to prepare for future leadership opportunities at Sandia. Tom responded with three items to consider. First, it's important to get the value proposition for your life right (you have to be happy in what you do). Second, as a Sandian, you should figure out how to get the richest and most diverse experience that you can across the Labs. And third, you should make yourself available to help others on a similar journey. "Whatever you do, get results in your jobs, and lead with excellence along the way."

Leader rotations

Recently, we have seen a number of director moves within the Labs — some as recent as the last few weeks — and there have been a large number of moves in the senior manager ranks. Sometimes these moves cause anxiety among the staff. There can be a feeling of uncertainty over how a center will be affected by a well-known and long-serving leader leaving, while a relatively unknown leader reports in.

The fact is, there is a clear intention behind each rotation, and it goes back to the idea of creating greater breadth by increasing experiences and exposing leaders to multiple disciplines in the Labs. Sandia's strength comes from the ability to put together a diverse set of world-class resources to solve the nation's most complex national security problems. To lead in this environment, "you have to be known, and know, the Labs," says Tom.

"Through the leadership development process we are able to prepare our leaders for increased responsibility at critical times. Filling future senior leadership jobs will likely come from those leaders with broad, rich, and diverse experiences across the Labs."

How has the director tapestry changed over the years?

In 1992, there were 44 directors at Sandia. The senior manager role had been recently eliminated, and this required directors to focus primarily on managing their organizations in order to fill the recently created void. As a result, they had less time to focus on the larger issues of the laboratory and the nation. They also had less time to learn about the diverse resources across the Laboratories that they could call upon to solve very difficult problems for the nation. There were fewer opportunities to develop a breadth of leadership experiences. New opportunities for experiences came about mainly when a different job became vacant.

By contrast, in 2005, as he took over his role as Labs Director and President, Tom Hunter reinstituted the role of senior managers to manage the organization, while he described the director's new role in a broader sense. He referred to directors as "corporate citizens," and asked that they focus on fundamental challenges for the Labs.

Directors are now expected to communicate and deploy a consistent vision for a capability or a program; support major corporate initiatives; lead initiatives across centers; and set the expectations and environment for policy deployment.

Tom described his expectation that directors spend about half their energies focused on the larger laboratory and national issues, while the senior managers are charged with supporting customers and operational excellence within their groups. These expectations require a leadership development program that affords broad experience across multiple disciplines at the Labs.

Today, there are 58 directors at Sandia. The Laboratory Leadership Team has become much more deliberate and intentional in developing Sandia leaders through proactive succession planning, career development, and rotational assignments. Last year there were 21 director moves — a little over one-third of the population. Of the 21, eleven moved from one director position to another, five were promoted to director from within Sandia's senior manager ranks, two were external hires, two directors retired, and one was promoted to vice president. These developmental experiences are creating leaders who can guide Sandia through a rapidly changing world with new and uncertain future challenges.

The most profound and sustainable learning comes from doing real work involving new experiences and new challenges. This is why rotations are so important in developing our future leaders. Rotating leaders regularly and challenging them with assignments that may stretch their experience and expertise not only creates value for the Labs, it ensures that the future of the Labs remains vibrant and bright. We expect our future leaders will be ready to take on any new challenges facing Sandia or the national security community with all the competence and confidence necessary. Developing and managing talent places the right people in the right places at the right times — while identifying emerging leaders for potential succession to the next level.

Succession planning

"Director moves and development are overseen collectively by Sandia leadership including: the executive vice presidents, all of the vice presidents, and myself," says Tom. "We plan all director moves and development opportunities as a team . . . it's the same type of team effort during the performance and compensation cycle."

Sandia's Laboratory Leadership Team also has a responsibility to prepare leaders within the Labs to assume critical senior positions in the event they become vacant; this is known as succession planning.

"Through the leadership development process we are able to prepare our leaders for increased responsibility at critical times," says Tom. "Filling future senior leadership jobs will likely come from those leaders with broad, rich, and diverse experiences across the Labs."

Complementary experience

Another significant dimension comes from experiences that future leaders have with other institutions. Some gain experience at other institutions prior to coming to Sandia, while others benefit from rotational assignments away from Sandia. Examples of past assignments that have provided Sandia leaders exposure to organizations include: DOE, NNSA, Lockheed Martin, and others across the national security community. In addition to rotations, leaders have opportunities to participate in programs like informal or formal mentoring, partnerships, classroom instruction, taskforces or cross-functional teams, on-the-job training, programs at Lockheed Martin's Center for Leadership Excellence (CLE), Sandia's National Security Leadership Development Program, and numerous in-house classes. All of these experiences prepare our leaders to address challenges across the national security community and to make better national security decisions.

The journey continues

Sandia will continue to focus on the development of leaders not only for the future of the Labs, but also for the nation. We believe the nation should be able to look to Sandia to set a leadership example across the national security community.

Sandians are often tapped to take on even greater responsibilities for national service. One only has to look across the nation's national security enterprise and around the country to see examples of some notable Sandians in positions of great responsibility, including: Don Cook, nominated to be NNSA deputy administrator for Defense Programs (NA10); Venkatesh Narayanamurti, former dean of the School of Engineering and Applied Sciences at Harvard; Paul Peercy, dean of the College of Engineering at the University of Wisconsin-Madison; Paul Fleury, former dean of the School of Engineering and Applied Science at Yale University; Dan Arvisu, lab director at the National Renewable Energy Laboratory; Bill Brinkman, director of the Office of Science at the Department of Energy; and Dona Crawford at Lawrence Livermore National Laboratory, Wendy Cieslak at Los Alamos National Laboratory, Bill Camp at Intel, Allen Camp at Los Alamos, and Everett Beckner, former NA-10. Each has served or is serving in positions that are complemented by broad leadership experiences. These leaders had the opportunity to hone their leadership skills while at Sandia.

Our leader development journey is a work in progress. While this article focused on the role of Sandia's executives in developing future leaders, it is the role of every leader at Sandia to develop our future. It is a core competency that every leader needs to develop, and is the work that continues to guarantee Sandia will contribute leaders of character to the Labs and the nation well into the future.

* * *

Contributing to this article were: Peter Davies, John Ledwith, David Keese, Karen Gardner, and Joan Luciano.

Strategic Plan

(Continued from page 1)

illustrated report created by Sandia's VP-and-above leadership team, articulates such focus and direction for the coming few years. New for 2010, the plan is available at an interactive website on the internal network at strategicplan.sandia.gov.

The annual plan includes a summary of world and national context and reviews of corporate, mission-area, and operational strategies. It serves as a guide for Sandia's management team as they make decisions about the future.

It arises from a yearlong series of discussions among Sandia's VPs and other top executives, who bring to the table the perspectives of their staffs and customers. This planning process begins with a scan of Sandia's environment and a review of the nation's most critical national security challenges. From there, the Labs' leadership discusses, debates, and agrees on the Labs' overall strategy and direction.

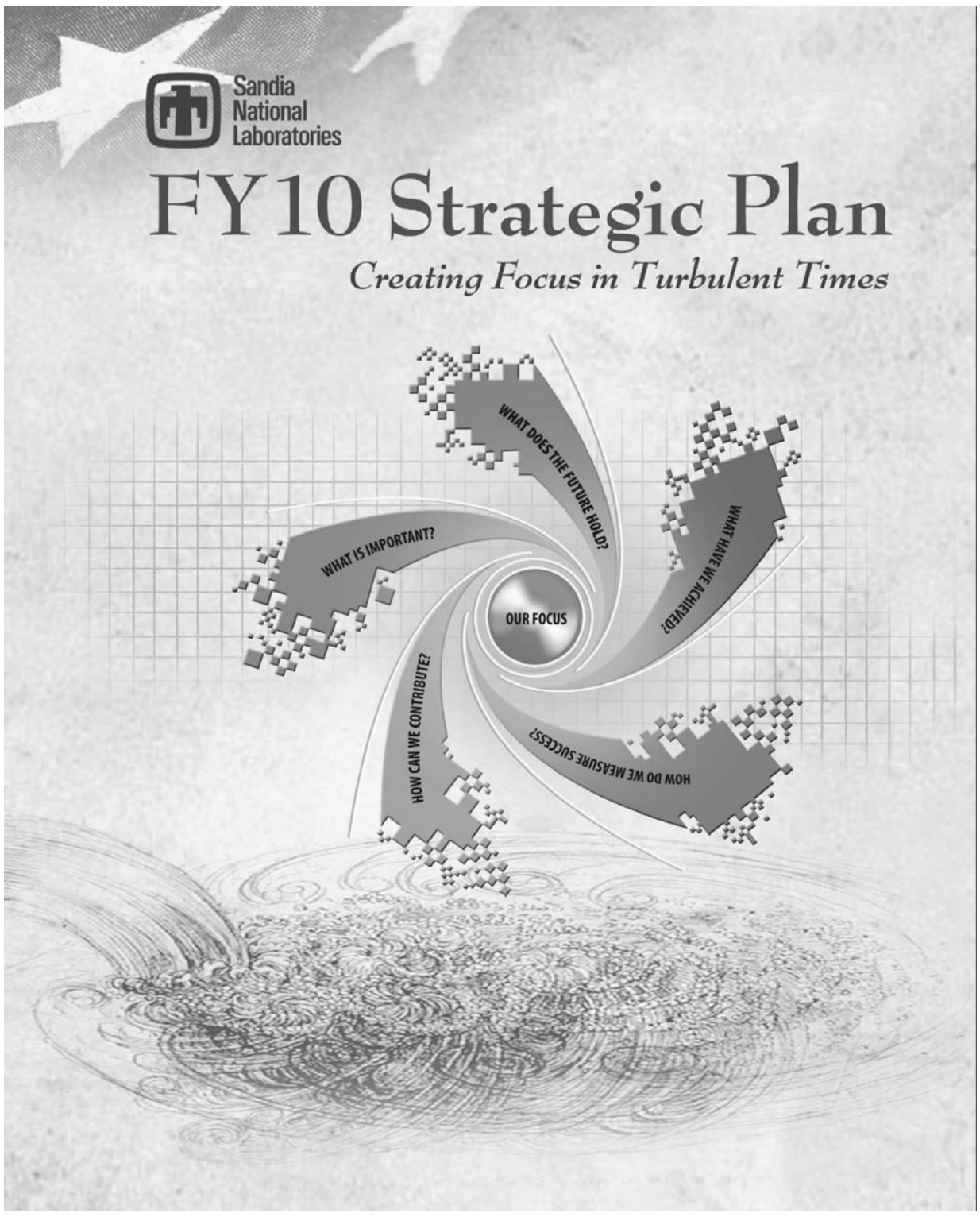
"In my view strategic planning is the heart of the collective thinking of the Laboratory. It allows us an opportunity to think about where we are and how we envision the future of the Laboratory, and then how we set a general course toward meeting that future."

— Labs Director Tom Hunter

"In my view strategic planning is the heart of the collective thinking of the Laboratory," says Labs President Tom Hunter. "It allows us an opportunity to think about where we are and how we envision the future of the Laboratory, and then how we set a general course toward meeting that future."

The FY10 Strategic Plan outlines six "strategic thrusts" — the highest priority activities that will receive focused attention in the coming years. Four of the thrusts are mission directions, and two are mission-enabling thrusts. Each thrust cross-cuts the Labs' mission and organizational structures, meaning thrusts are intended as unified, all-Sandia efforts. The strategic thrusts are:

- Nuclear security
- Energy security
- Cyber security
- Science & technology
- Business reengineering
- Governance



Brief videos about the thrusts, presented in a documentary-style format and featuring the perspectives of individual Sandia executives, are now available at the website.

"We've heard from Sandians that they want more information from the leadership team about the Labs' strategy," Peter says. "The website and videos are our way of sharing this in an interesting, thought-provoking way. Tell us what you find useful and how it can be improved."

The website includes a feedback link.

The FY11 strategic planning process is underway.

Cielo supercomputer

(Continued from page 1)

confidence in the predictive capability of stockpile stewardship.

Installation is projected for the third quarter of 2010, with additional capability planned for 2011.

Design of the machine was led by Sandia in cooperation with LANL. The two labs will share day-to-day responsibilities for operation of the platform, which will be housed at LANL's Strategic Computing Complex facility.

The selection of Cray — the industry partner chosen to build the approximately $54 million machine — was made through a competitive procurement process. The technical evaluation by members of the labs included design, procurement, and deployment.

Cielo
NNSA New Mexico Alliance for Computing at Extreme Scale

The ultimate design goal for the machine — part of NNSA's Advanced Simulation and Computing (ASC) program — "is for Cielo's increased capability to achieve higher degrees of fidelity in the models and reduce the total time to solution," says Doug Doerfler (1422), Cielo system architect.

ASC's modeling & simulation applications "perform extremely well on the Cray XT architecture," he says. "The XT has demonstrated fast execution times and excellent scaling characteristics while also providing a reliable and robust environment for our users."

Cielo will be based on Cray's next-generation "Baker" architecture with a new high-speed interconnect named "Gemini" that, says Doug, "will provide a transparent transition for our users and give a significant boost in performance."

Says NNSA Administrator Thomas D'Agostino, "Cielo will be an invaluable addition to our supercomputing program, which enables NNSA to ensure the safety, security, and effectiveness of the nuclear stockpile."

The future will produce even greater challenges, says Doug, because Cielo — as good as it's expected to be — may be the last of its line in providing major improvements in computing capabilities without a major investment in new computing codes.

"Supercomputers are at an inflection point due to the development of massively multicore and heterogeneous processor architectures," Doug says. "This is a huge issue for our algorithm and application teams, and at this point in time it's not clear what the right solution is and how the codes should be written to support these future machines."

NNSA plans to achieve an exascale computer capability by 2018.

Cielo will consist of:

- 96 cabinets
- 8,944 compute nodes
- 43,104 compute cores
- 291.5 TB memory
- 200 GB/s file system bandwidth
- less than 1,500 sq. ft
- less than 4MW power

The ACES — Alliance for Computing at Extreme Scale — colead with Sudip Dosanjh is LANL's John Morrison. Manager Bob Tomlinson (LANL) and deputy manager Bob Balance (9328) will be responsible for day-to-day operations of the platform. Jim Ang (1422) and deputy Ken Koch (LANL) performed the market surveys and industry interactions for the ACES Architecture Office that led to setting the Cielo technical requirements. Manuel Vigil (LANL) is the Cielo project manager and Doug Doerfler (1422) is the Cielo system architect.

Community

Stories by Iris Aboytes

PROVIDING

As a great country we could do more to provide basic needs, says Warren Cox

Warren Cox (4137) is Sandia's representative on New Mexico's Collaboration to End Hunger, an association of organizations and individuals focused on ending hunger in New Mexico. Lockheed Martin has committed to donating $42,000 a year for three years to support the Foods for Kids backpack program at six sites. The program fills backpacks with child-friendly, nonperishable, and easily consumed food that children take home. Warren provides volunteer leadership at two sites.

The collaboration has begun an Intergenerational Summer Food Program at two of the sites. The program involves having the older generation teach the younger generation how to grow its own food.

"I guess you could say I am passionate about fighting food insecurity," says Warren. "New Mexico ranks fifth in the United States for people fighting food insecurity which affects more than 14 percent of the state's population."

He describes food insecurity as "limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways. "Eating enough nutritious food is fundamental to well-being in many ways," he adds.

"My interest in helping make things better goes back to when as a young man Kennedy idealism resonated everywhere. I believed in President John F. Kennedy's words 'Ask not what your country can do for you, ask what you can do for your country.'"

After undergraduate college and military service, he joined the Peace Corps and was sent to Cartago, Columbia, a city of about 100,000. He would go anywhere he was needed. In Cartago he helped local businesses.

While he was there he met, fell in love, and married another Peace Corps volunteer, Sue, who worked in malaria eradication.

In Cartago, they lived in a recovery facility for poor children. "All this time, I had been helping the higher echelon," says Warren. "Living in the recovery facility, and through Sue's work in a small health clinic, I was able to help the needier. It was not surprising to go to the door in the morning and find a basket with a baby inside."

A YOUNG SUMMER FOOD PROGRAM participant is prepared to grow her own food.

In the years since Peace Corps, Warren acquired interests in the environment and public health. It was public health that drew him to the issue of food insecurity, and recently to the Collaboration to End Hunger.

"The Food for Kids backpack program is great, but cannot run through the summer because there just isn't enough funding. The program can only go for six to eight weeks," says Warren. "That is very unfortunate. The Collaboration knows from survey data that the food the child takes home helps feed two to three people."

"As a great country, it seems we could make it possible for all our citizens to have the basic necessities of life."

For more information about the Food for Kids and Intergenerational Summer Food Program, and volunteering opportunities, contact Warren at wbcox@sandia.gov.

BY THE NUMBERS

A few of the ways Sandians help their communities . . .

COMMUNITY GIVING

- Lockheed Martin has donated $19 million in the community since 1993
- Sandians pledged more than $4 million to United Way of Central New Mexico in 2009
- Shoes for Kids — Employees donated $15,000; 450 students received new shoes
- Roadrunner Food Drive — 34,300 lbs. of food donated

EDUCATION

- Family Science Nights — 60 evenings, 6,000 students
- CroSSlinks science volunteers — 50 volunteers
- Fun in the Sun summer science — 400 students attend
- School to World career exploration — 2,000 students, 500 career presenters
- Mission Engineering — Serves 300 middle school students with six inquiry-based activities
- Science bowls — Coordinate 75 teams to compete
- Fuel cell competition — 180 students compete in essay, race, orals
- STAR intern program — High school juniors work eight weeks at the Labs
- Pi teaching awards — Recognizes outstanding math teachers
- Teacher professional development — ACTS and POWER

VOLUNTEERS

- 995 volunteers registered more than 114,000 hours in 2007
- Make a Difference Day — 200 employees, 16 projects
- Community Service Awards — Seventy-one employees received awards for 100, 250, and 500 volunteer hours

ENCOMPASSING

Sandia/California community efforts span education, philanthropy, civic engagement

Sandia/California's community outreach efforts promote science education in K-12 schools and colleges, foster relationships with local government and civic organizations, and support the community through philanthropic projects.

Family Science Night and other education endeavors

Family Science Night (FSN) continues to be the cornerstone of Sandia/California's outreach efforts to K–12 schools. Sandia/California piloted FSN in the spring of 2005 at two Livermore schools; the program is now in approximately 25 schools each year in several nearby cities.

FSN has always served as an important way to connect Sandia to the community and engage families in hands-on, fun, science activities. The program is even more important as schools face budget cuts, which have all but eliminated enrichment programs.

Athletes compete in sporting events, and students who excel at performing arts can showcase their work in theatrical productions, music concerts, art shows, and competitions. But what about kids who stand out in science? Fortunately, the Department of Energy Science Bowl for middle and high school students provides an exciting, competitive venue for budding scientists and engineers.

The DOE National Science Bowl was conceived in 1991 as a way to encourage high school students to excel in mathematics and science and pursue careers in those fields. Today, Sandia/California is involved in three DOE High School Science Bowl regional competitions and two middle school events.

Each year, the Sandia/California's Women's Committee hosts the Math & Science Awards, which recognize 20 outstanding young women from the region. Teachers from each represented high school nominate two students: one in math and one in science.

Each awardee is paired with a Sandia host who works in the field of math or science. The hope is that the Sandia women can mentor the high school students as they continue in their academic and professional careers.

Sandia is also a sponsor of the Livermore Valley Joint Unified School District's Science Odyssey and the Tri-Valley Science and Engineering Fair (TVSEF). At both events Sandia sponsors cash prizes and scientists help evaluate project applications and serve as judges.

Philanthropy and giving programs

Sandia/California's corporate giving program is called Sandia Helps and Reaches Everyone (SHARE) to emphasize that these gifts touch everyone in our community. SHARE is designed to make it easy for Sandians to contribute to charitable agencies that serve communities in the greater Bay Area and the San Joaquin Valley.

SHARE typically raises more than $250,000 with more than 70 percent participation. These funds are distributed to approximately 150 agencies directly supporting individuals in the communities in which Sandia employees live.

Each winter, Sandia/California celebrates the holiday season with the Holiday Spirit Campaign. Members of the workforce distribute over 2,000 pounds of food to local food banks and some 60 turkeys to the Tri Valley Basket Brigade. Through the Holiday Spirit Gift Campaign, members of the workforce send gifts into local communities for nearly 500 needy families.

Sandians have also participated in recent years with Habitat for Humanity and in the American Cancer Society's Relay for Life.

Other civic endeavors

Sandia/California is active in the local community and aims to be a good corporate citizen. Sandia is a corporate platinum sponsor of the Livermore Chamber of Commerce, and Bob Carling, director of the Transportation Energy Center, sits on the Chamber's board of directors. Sandia is also a business member of the Tri-Valley Business Council.

Sandia/California also enjoys an active partnership with Las Positas College, a community college located in Livermore.

— Patti Koning

SANDIA/CALIFORNIA sponsors Family Science Night activities at some 25 area schools each year, just one of the many ways Sandians in the Livermore area support their community. (Photo by Randy Wong)

Giving back is the best reward

There are many ways that Sandians stand out from the crowd: technical excellence, top-secret work, exceptional service to the nation — it's a long list. A list that can make a person proud. As good as these are, though, the one that stands out for me is our involvement in the community.

There is hardly an event, not-for-profit organization, club, school, or youth-based organization that doesn't benefit from the presence of a Sandia. We are there as worker bees or board members, supportive parents, volunteers, or cash contributors. Whether it's in the nature of a person who would work for a national lab or some other esoteric reason, Sandians make themselves felt in the community.

BRUCE McCLURE

This part of who we are runs deep. Talk to a longtime retiree and the story has always been the same: We don't just go to work and come home again; we spend our time, our energy, our money, and our passions in the community. For the most part, we do it with very little fanfare, with very little attention paid to getting recognition. The reward comes from knowing you are doing your part and then some to make the Albuquerque or Livermore community a better place to live, work, and raise a family.

For quite a while, Sandia has recognized this behavior and has even created a structure that supports that effort. This ethic is well enough established to result in a policy system that reflects that value. But beyond the bureaucratic side, there exists a willingness on the part of managers and coworkers to be flexible enough to let folks get the job done and help out in the community.

Sandia is an enviable place to work where our technical prowess is matched by our good-hearted generosity. It is a defining characteristic of our culture.

Community Involvement Dept. 3652 has been known by many names and numbers over the past decade or so of its existence but its core trait, service to the community, has been unchanged.

The staff has come from all across the Labs with a diverse range of experience. They've come from budgeting, accounting, the Atomic Museum, training, education, banking, secretarial work, and more. They are engaged at many levels from the professional to the personal, all bound by a passion for affecting the quality of life in our community through our programs in education, philanthropy, and volunteering.

Over the next few pages of this special section of the *Lab News*, we're happy to introduce you to just a few of the many ways we are active in the community. We know it's not a comprehensive picture — that would fill a book — but we hope it's representative of who we are, what we do and how we have taken president Harry Truman's initial charge to us as a laboratory and brought it closer to home by providing exceptional service in the community's interest.

— Bruce McClure, manager, Community Involvement Dept. 3652

BROTHER AND SISTER Rosie and Freddy, clients of ARCA, admire the tapestry they have nurtured. (Photo by Randy Montoya)

GIVING

Sandia employees/retirees donate record-breaking $4,047,360 to the United Way of Central New Mexico

It began in early summer. Sandia planning committee members and United Way of Central New Mexico representatives began planning Sandia's annual Employee Caring Program (ECP) campaign.

More than six months later the results are in. Sandia Labs employees and retirees pledged more than $4 million. Sandia is again announced as the No. 1 giver to the United Way of Central New Mexico.

$4M

"I'm extraordinarily proud of the Laboratories' contributions to the United Way campaign this year," said Tom Hunter, Sandia President and Laboratories Director. "The depth of caring by our employees and retirees is a real reflection of the character of the Laboratories and the significance we place on giving back to our community."

"When I first started working with Sandia and their ECP campaign in 1997, I recall hearing a former Laboratories director say, 'People don't care how much you know until they know how much you care," said Randy Woodcock, vice president and chief operating officer for the United Way of Central New Mexico. "Well, our community knows how much Sandians care by the generosity they demonstrated in raising more than $4 million through the United Way/ECP campaign this past fall."

The $4 million includes $70,000 from Lockheed Martin Corp. and $518,000 from Sandia retirees.

How did it all happen?

Once the 20-member committee planned the campaign, 76 representatives from throughout the Labs set out to make a difference. United Way surveys have revealed that some people don't give because they are not asked. So, the goal of the representatives was to afford each employee the opportunity to participate. The 77 percent participation rate indicates they were very successful.

"In the relatively short time I have been at Sandia, I have come to learn that this is a very caring and generous community," says ECP campaign chairman Brian Bielecki (4200). "Given the challenging economic times that rapidly expanded the needs throughout many parts of New Mexico, all of us involved in this year's United Way campaign were uncertain how the level of giving would be impacted. The results speak for themselves, and clearly indicate that the greater the need, the greater the spirit of giving rises within Sandia. Thank you for your ongoing generosity. It is a privilege to be part of such a committed and caring community."

Retirees were sent letters directly from United Way. Referred to as "Sandia's secret weapon" by a former Sandia vice president, retirees' generosity proves once again their continuing desire to make a difference.

Sandians sit on various United Way committees

Al Romig, chairman of the board for 2010
John Slipke, member of finance committee
Jodi Maheras, Community Impact Council
Pam Catanach, Community Impact Council
Terri Lovato, Women in Philanthropy
66 Sandians serve on allocation panels.
Many volunteers serve on various committees.

INSPIRING

Family Science Night

It is about 6 p.m. on a Thursday evening. It is cold and windy, but inside Apache Elementary School excitement is in the air as students and parents fill the school cafeteria to participate in Family Science Night. Sponsored by Sandia and administered by Community Involvement Dept. 3652, Family Science Night is an educational outreach program designed to introduce young students to math and science.

Tables with various experiments invite students to become scientists. The students' dilemma seems to be where to go first.

One table has spaghetti and miniature marshmallows. Students attempt to create a structure that will support a ping pong ball. Eight-year-old Jason goes right for the marshmallows. He takes the spaghetti in his hands and in an instant the spaghetti breaks. He takes another piece. This time he does it gently, and using the marshmallows as connectors begins his creativity. As his structure takes shape students gather at the table, and each begins to build.

The experiment was designed to illustrate that engineers use a variety of materials and designs to build buildings. Materials and design depend on the purpose of the buildings, required stability, foundation, outward appearance, and many other factors.

Excitement surrounds a table that has an experiment called Harry Potter Potion. Students fill a baggie with water, squeeze the air out of the baggie and reseal it leaving only a small slot. They insert an effervescent tablet into the baggie and reseal it. They shake the bag and lay it flat on the table. They look in amazement as gas fills the baggie.

"I love science just for this reason," announces 8-year-old Eric. "You never know what is going to happen."

Parents and students perform the experiments and together try to understand what happened and why. In the Harry Potter Potion a chemical reaction is produced. A chemical reaction is when two molecules come together and undergo chemical change to form a new substance with new properties. When a chemical reaction takes place, you might see a color change or bubbles form. Chemical reactions occur all around us.

FAMILY SCIENCE NIGHT — Will his creation hold a ping-pong ball? (Photo by Randy Montoya)

When 8-year-old Andrew is asked what a molecule is, he waits for a while then responds. "I don't exactly know, but I know it is science that we are studying now. It is important."

As all the tables fill up, the atmosphere is like that of a school carnival, each student wanting to try a different experiment. Their eyes open wide as another balloon bites the dust and the Harry Potter Potion takes a life of its own.

As each student completes each experiment they begin to leave. The tables are littered with broken spaghetti, popped balloons, and marshmallows. Salt glitters on the cafeteria floor.

Viscosity, atoms, and molecules return to the science books feeling rather proud that they have once again intermingled with a young and sponge-like audience. Will they become permanent friends? Only time will tell.

Teaching

Everything's coming up roses, actually poinsettias, for ARCA with the help of Marlene Brown

When Marlene Brown (5737) went on an ECP tour to La Paloma Greenhouse and ARCA Organics in Corrales, she did not realize that a year later she would be installing solar electric panels — photovoltaics — at their site.

ARCA is a nonprofit organization founded in 1957 by Albuquerque families who had children with developmental disabilities. Located in Corrales, the site grows more than 28,000 plants and flowers annually, including world-class holiday poinsettias.

To hear Marlene tell it, she just happened to go to La Paloma and the tour host, Jim Douglas, told her group that La Paloma would like to have solar panels installed to save on energy costs for the greenhouse.

"As a nonprofit working with people with developmental disabilities, we are constantly looking for ways to reduce our energy costs and be good stewards of the resources we have," says Douglas, ARCA division director. "To that end, we entered into many conversations with local solar companies and solar end-users to get familiar with the technology and what advantages/disadvantages solar power provided.

"When I was explaining to the ECP tour representatives about our long-range plans for the program, including adding solar power to greenhouse, Ms. Brown spoke up and said, 'I'm your gal.'"

"I told them that if they got all the hardware needed for the installation and got it on site, I would hold a class through New Mexico Solar Energy Association (NMSEA). We would design and install a system for them," says Marlene. "It took about a year for ARCA to raise the funds, but they pulled it off."

"When everything was in place, I taught a class over two weekends," she says. "The first weekend, the class is held in a classroom. All aspects of the photovoltaic system are covered, including design, siting, and safety. The system was installed over the second weekend. This part of the class was all hands-on. We had about 30 people helping to install the system. It was great."

The classes are run through NMSEA and are open to the public. At the time, Marlene was president of NMSEA, a position she held for four years.

The installation is a 3.8 kilowatt PV system mounted on two dual-axis trackers. Half the class worked on installing the modules while the other half worked on installing the inverter and the balance of the system.

"Thirty people were a lot of people to work on system installation," Marlene says, adding that it was also the biggest system an NMSEA class has ever installed. We got everything up and running within an hour of sunset the second day. Everything went smoothly and the system was up and running before we left the second day of the installation."

"The end result is that we are able to defer some of our operational costs by having our organic greenhouses powered by the sun," says Douglas. "Through the help of many hands, hearts, and minds of the greater Albuquerque community, anything is possible.

A 3.8 KILOWATT PV SYSTEM was installed by Marlene Brown and NMSEA students at La Paloma Greenhouse and ARCA Organics. (Photo by Randy Montoya)

"I am glad Marlene came on the tour. She is one of those personalities that makes a direct impact wherever she goes. She is down to earth, knowledgeable, and cares deeply for the projects and people that she immerses herself in."

Marlene has also been instrumental installing systems at the Rio Grande Zoo, Bandelier National Monument, and several other nonprofit agencies.

"What I won't do," says Marlene, "is install a system at someone's home. I will not take a job away from installers."

Marlene's volunteering is not confined to ECP; she does other volunteer activities. Currently she is a visiting scientist at Explora. On April 10 she will unveil her newest project — a solar fountain. Kids get to put it together and of course get wet while doing it.

Comforting

Material Girls create treasured masterpieces for sick, homeless, and abused children

One by one the Material Girls (seamstresses) arrive at the Manzano Mesa Multigenerational Center. Instead of carrying notebooks, each carries a sewing machine. The Material Girls are Sandia Labs Project Linus volunteers who get together on the second Saturday of every month to make blankets.

Project Linus was born in the 1990s when housewife and mother Karen Loucks read about children finding comfort in security blankets. She began making blankets to donate to children's hospitals.

Named after the security blanket-toting character from the *Peanuts*' comic strip, Project Linus is a 100 percent volunteer national nonprofit organization, with more than 100 chapters in the United States.

"Through the gift of a handmade blanket, Project Linus provides love, a sense of security, and warmth and comfort to children who are seriously ill or traumatized," says Sandia Labs Project Linus program manager Darline Polonis.

About 15 Material Girls volunteer monthly. "You can come even if you don't know how to sew," says Darline. "We have all learned from each other. The fabric is donated and Sandia buys the batting. Each quilt takes approximately five hours to complete. About 150 quilts are donated by the Sandia Labs chapter each year.

Blankets go to the local hospitals for sick, homeless, and abused children. Each blanket has its own label identifying it as a Project Linus blanket.

"I work at Presbyterian Hospital in the Newborn Intensive Care Unit in Albuquerque," says Neva Coffee. "Project Linus blankets are given out to our babies in the unit. The nurses ooh and aah over these precious blankets. Perhaps because the baby looks like a 'baby' the nurses forget for a while that the baby is a patient. We are not a bunch of mean old nurses, but your blankets are such visual reminders, and they humanize the whole environment, and I feel make us better for it."

COLISTA REYNOLDS (5925) smiles as she works on a special quilt .

Sue Kelly (1423) says quilts can be artistic expressions. "But not mine" she says. "I am an engineer. Mine are always perfect squares or triangles. I pick a cheerful, juvenile fabric from our stash of donated fabric. Then I pick a design from the design book.

"It is not just about the quilts," says Sue. "The Material Girls already have sewing in common. It is a great way to build good friendships. We usually sew from 9 a.m. to noon, when we all go for lunch before going home."

"Babies are too small to know that someone with a kind heart and talented hand made them a present," adds Coffee. "However, they can smell and know this blanket doesn't smell like a hospital. When they are taken home and begin to grow, the patterns and colors give them something to focus on. They explore with their hands, feet, and mouths, and because it is with them so much, the familiarity gives security and a little peace in a very stressful environment.

"THE BEST KIND OF SLEEP under heaven is under a blanket handmade with love," says Darline Polonis.

"Babies are little, but not stupid. I can see their heart rate slow down and steady out. I can see the blood pressure come down, their respirations change. So believe me when I tell you the babies need and benefit from your gifts."

Mentoring

The National Science Bowl competition is a pipeline for future scientists

Twins Barton and Benjamin Bone from San Jon, N.M., proudly describe themselves as science geeks. They along with their team members Antonio Martinez and Mathew Evan, recently competed in the National Science Bowl. The competition, held in Albuquerque, attracted 36 teams from high schools throughout New Mexico.

Launched in 1991 to encourage high school students to excel in science and math, the Department of Energy National Science Bowl is the only science competition in the United States sponsored by a federal agency. The national competition now involves more than 13,000 students. In 1972, DOE introduced the National Science Bowl's competition for middle school, and it now involves more than 5,000 students. The New Mexico program is administered by Sandia's Community Involvement Dept. 3652.

The competition tests students' knowledge in all areas of science. Students are quizzed in a fast-paced question-and-answer format similar to *Jeopardy*. Competing teams from diverse backgrounds are made up of four students, one alternate, and a teacher who serves as an advisor and coach. As the contest begins, here are some of the quiz questions:

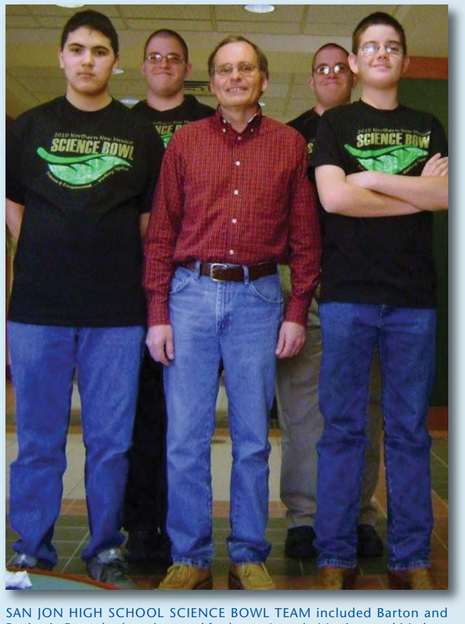
1. Name all of the following three groups of organisms that generate ATP by chemiosmosis (chem-ee-oz-MOE-sis):

Answer: Cyanobacteria; plant cells; animal cells.

2. Multiply the following complex numbers, giving your answer in standard a + bi form:

Answer: (6 + 3i)(4 + i).

Keith Hilber, coach for the San Jon High School science bowl team says, "I enjoy working and practicing with the team during and after school and then traveling to the big city to participate in the science bowl," says Hilber. "San Jon has a little more than 130 students from kindergarten to high school. Through the science bowl, my students meet other students who enjoy math and science and experience being with a diverse group of students. Coming from a small community, I do not want them to suffer from culture shock.



SAN JON HIGH SCHOOL SCIENCE BOWL TEAM included Barton and Benjamin Bone, both seniors, and freshmen Antonio Martinez and Mathew Evans. Their coach, center, is Keith Hilber.

"While we were waiting to compete recently, a student on a participating team began to play his guitar and the rest of his team began to sing. I was impressed with their talent. It was an excellent way for students to handle their precompetition jitters. Our team is mostly composed of Future Farmers of America (FFA) members. They live on farms or ranches and have many chores, but are committed to being on a science bowl team."

Barton and Benjamin raise goats and enter them in the different competitions. Selling them at year-end gives them their Christmas money, but perhaps not for long. Barton and Benjamin will be attending New Mexico Tech in Socorro in the fall.

Throughout the country, DOE regional science bowls are held in January and February, followed by the national competition held in Washington, D.C., in May.

"It marks the end of a long academic journey that begins in November when students form teams and begin preparing for regional competitions," says Sandia program manager Cheryl Garcia (6252). "This program is a great pipeline for the Labs' future scientists and engineers."

Helping

Connie Vanderburg walked in with a smile and left with an 'Oh, my God!'

When Connie Vanderburg (4800) became an Employee Caring Program (ECP) representative, she did not know what to expect. She had always been an ECP participant, but being a representative was different.

"I was determined to make a difference," says Connie. "When the opportunity came to become our center representative, I volunteered. I didn't like the idea of someone being selected who wasn't dedicated to helping. Being a representative has made me discover a different world out there so different from my own.

"I like to tell the story about the first time I went on a Sandia-sponsored tour to Peanut Butter and Jelly, a United Way agency that helps at-risk children to grow and develop to their full potential in nurturing families."

"Those who give when they are asked to, have waited too long."

— Kobi Yamada

In an effort to explain what the agency was all about and where the children came from, their host told them a story of a father who had been in jail. Upon his release, he found a very different wife than he remembered. PB&J was working with her to help her change, but he didn't like the change, so he killed her. What would happen to his children?

During the past 12 years, Connie has gone on many tours. Most of the agencies she had never heard of. "Going on the tours definitely opened my eyes," says Connie. "Some agencies I entered with a smile but left with an 'Oh, my God.'"

Each year Connie tailors her campaign to reflect what she and members of her ECP team have seen. She wants her coworkers to see through her eyes what she has seen. It is only then, she believes, that people can open themselves up to make a difference.

A recent tour of Alta Mira, a United Way agency that supports individuals with developmental risks, delays, or severe disabilities and their families, really affected her.

"I became literally sick," she said. "I knew people who needed this type of help existed, but never really thought about how they were helped. What an eye-opener it was for me.

"Kobi Yamada's words rang through my mind 'Those who give when they are asked to, have waited too long,'" says Connie.

"Many people have lost their jobs during the changes in our economy, and need someone to care and reach out," says Connie. "Today lots of people do not live close to their family members. They need someone to help and encourage them."

Connie will be retiring at the end of year, but she says that as soon as she is settled United Way will become part of her life in one way or another.

"I know I can't help everyone, but I can help some," she says. "They need someone who cares. I care."

Engaging

'A valued and responsible corporate citizen'

Although Sandia last year marked its 60th anniversary, it was just 17 years ago that the Labs established a formalized program to proactively support the Labs' increasingly diversified efforts in community involvement. Individual Sandians had been engaged from the very beginning, but nothing was in place to tie their efforts together. And nothing was in place to manage what is sometimes called "reputation risk," the perceptions people have of an institution.

Mike DeWitte, deputy director of Communications and Public Relations Center 3600, was present at the creation of that formal program, which is now largely managed by Community Involvement Dept. 3652. Mike, an Air Force veteran, joined Sandia's technical staff in 1976.

MIKE DEWITTE

Here's how it began: When it was awarded the contract by DOE to manage the Labs, Lockheed Martin made a commitment to be involved in the community. Then-Labs Director Al Narath, aware of the positive impression Mike was making during public hearings about WIPP — the Waste Isolation Pilot Plant — and UMTRA — the Uranium Mill Tailings Remediation Action program — asked him to set up a Sandia community outreach effort. Al thought Mike was the right choice because of his ability to "translate" complex technical issues into everyday language.

Mike, along with a select group of like-minded staff (Steve Baca, Lynn Schluter, Bill Mairson, and Pam Catanach) immersed themselves in the effort. One of the first things they did was to conduct community surveys and focus groups, done in conjunction with the University of New Mexico Institute for Public Policy. The survey surfaced some good news and some not so good.

Respondents reported that they considered Sandia as an institution to be arrogant, secretive, and to pose a potential environmental threat. Those negatives were balanced by findings that the community appreciated Sandia's well-educated workforce and the Labs' economic impact on the community. Respondents also said that they knew and liked and respected individual Sandians as friends and neighbors.

The results suggested to Mike and his group that they had some work to do. To that end, they developed a mission statement, which has been its guiding light ever since: "Be a valued and responsible corporate citizen and community partner."

Periodic surveys confirm that Sandia is now seen as a fully engaged, community-minded organization.

Lockheed Martin, Mike notes, got behind the community outreach effort with enthusiasm — and something more.

"They gave us fee money," Mike says, "to join civic and business organizations throughout the community, and we really got involved." (Fee money is money that comes directly out of the management fee Lockheed Martin is paid by DOE.)

Starting from those roots, periodic surveys confirm that Sandia is now seen as a fully engaged, community-minded organization. Sandians serve in key roles in organizations as diverse as the Economic Forum (Mike is the immediate past chairman of that group), Albuquerque Economic Development, the Albuquerque Hispano Chamber of Commerce (Div. 10000 VP Matt O'Brien sits on the board), the Greater Albuquerque Chamber of Commerce (Div. 3000 VP John Slipke serves on the board), the Albuquerque Business Education Compact (Dept. 3652 Manager Bruce McClure chairs the board), and many others. Mike says the Labs has worked its way into the leadership of these organizations from the ground up and today has an ongoing strategic effort to keep Sandia leaders active in the community.

The Labs sends scores of volunteers in the community's schools and its charitable organizations. And since it assumed management of Sandia in 1993, Lockheed Martin has contributed some $19 million to support the arts, human services, civic development, and, especially, education.

—Bill Murphy

‘I loved the shapes of snowflakes’

Intel Science Talent Search competition winner Erika DeBenedictis is daughter of Sandian

GRAND AWARD WINNER Erika DeBenedictis (facing camera) is interviewed by media during the 2010 Intel Science Talent Search. Erika, daughter of Sandian Erik DeBenedictis, took first place in the competition, which carried with it a $100,000 top prize.

By Iris Aboytes

Erika DeBenedictis, daughter of Erik DeBenedictis (1412) was recently awarded the $100,000 top prize at the Intel Science Talent Search competition for her project developing a software navigation system for spacecraft.

Erika researched ways to plan paths for spacecraft so that they can travel throughout the solar system using minimal fuel by relying on the gravity and movement of planets for propulsion. Erika is the first New Mexican to be awarded the prize.

This year’s Intel Science Talent Search finalists hailed from 18 states and represented 36 schools. Of the 1,736 high school seniors who entered the Intel Science Talent Search 2010, 300 were announced as semifinalists in January. Of those, 40 were chosen as finalists and invited to Washington, D.C., to compete for the top 10 awards.

The Intel Science Talent Search encourages students to tackle challenging scientific questions and develop the skills necessary to solve the problems of tomorrow. Over the past 68 years, Science Talent Search finalists have gone on to win seven Nobel Prizes, two Fields Medals, three National Medals of Science, and 11 MacArthur Foundation Fellowships.

Erika has led the winning team in the New Mexico Supercomputing Challenge for the past three years and also led a team to the National Siemens Competition in 2008. She was named a Davidson Fellow in 2009 for her previous research on orbit planning.

She says her love of science began when she was required to do a science project in seventh grade. Her teacher advised her to pick something she was interested in. “I loved the shapes of snowflakes,” says Erika, “I wanted to know why they looked the way they do. I wrote a very simple computer program that created rainbow-colored pictures that looked like snowflakes.” Since then, Erika has done one or two science research projects every year.

When talking about her current work, she says, “I love to tell people about my research. I am so inspired by what I’m learning right now. I want to show that to other people.”

Erika is a senior at the Albuquerque Academy and has been accepted to CalTech, MIT, Harvard, and Notre Dame. “I don’t know where I will be going,” she says. “They’re all good schools. I haven’t entirely decided what I want to do after college. One possibility might be working in the private space industry.”

She is also recipient of a Lockheed Martin National Merit scholarship.

The only place you won’t find Erika is in the medical field. “I am too squeamish,” she says. “I couldn’t even do the dissection in my biology class.”

Science is not the only thing that interests Erika. She plays the piano and sings in the school choir. She enjoys reading, cooking, and making artsy-craftsy presents for her friends and parents.

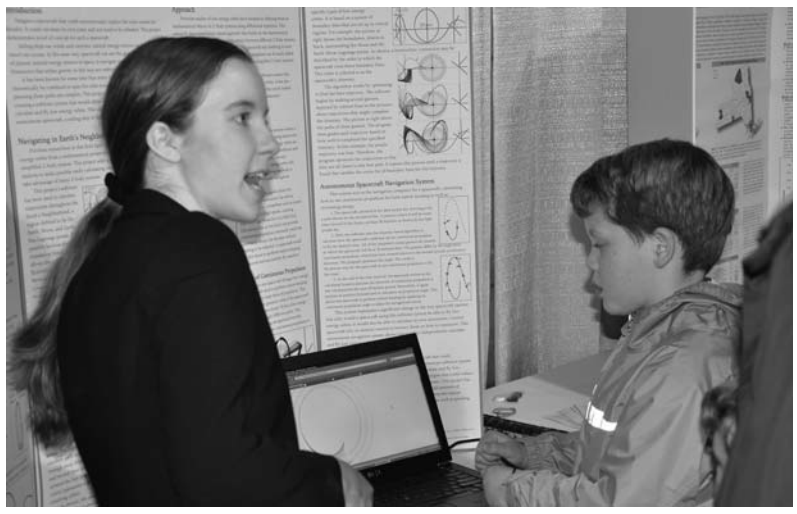
“My dad and mom never pushed me into science,” says Erika, “My mom, Beverly, worked in the human resource field. She has always told me that communication and teamwork are crucial. I’m a mix between my parents. I realize that science is best when you work with other people and can share what you discover.”

ERIKA DEBENEDICTIS

Last year, Erika led a team that was awarded the first place and top of category Grand Award at the Intel International Science and Engineering Fair, a prize that included a trip to Switzerland to tour the new particle collider. Along with renewed enthusiasm for particle physics, Erika picked up a new hobby on the trip — espresso.

“I came home and bought an espresso machine,” says Erika. “I’m somewhat obsessed. I’ve read books about espresso, and I have a collection of cute little cups. I even wrote a college essay about coffee.”

Although Erika will miss the “glory days” of high school science competitions, she is looking forward to college. She will be working on an internship at Intel this summer.



ERIKA DEBENEDICTIS discusses her work during the Science Talent Search

Intel Science Talent Search

Prestigious science awards program began in 1942 under Westinghouse sponsorship

From the Intel Science Talent Search website:

The Intel Science Talent Search (Intel STS) is America’s most prestigious science research competition for high school seniors. Since 1942, first in partnership with Westinghouse and since 1998 with Intel, Society for Science & the Public (SSP) has provided a national stage for America’s best and brightest young scientists to present original research to nationally recognized professional scientists.

The Intel STS encourages talented US high school seniors to pursue independent research in science, math, engineering, and medicine. Seven alumni of the program — the nation’s oldest and most highly regarded precollege science contest — have been selected as Nobel laureates.

Over six decades, more than 130,000 students from US high schools in all 50 states and territories have completed independent science research projects and submitted entries. Each completed entry consists of a written description of the student’s independent research, plus an entry form that elicits evidence of the student’s excellence and accomplishments. More than 2,600 finalists have received more than $3.8 million in awards to support their college educations, and 18,000 semifinalists have received millions more.

SSP receives generous support from the Intel Corp. and the Intel Foundation to present the program and awards for the Intel STS. We are honored that Intel has recently agreed to continue its support as the sole sponsor of our Intel STS program through 2016.

Past winners of Science Talent Search read like a who’s who of American science

With amazing precision, program judges have identified leading research scientists, mathematicians, and physicians while they were still in high school, years before their professional careers began. The result? More than 100 of the world’s most coveted science and math honors have been won by alumni of this program.

AWARD	DESCRIPTION
The Nobel Prize	Seven finalists have won the Nobel Prize
Fields Medal	Two have earned the Fields Medal
National Medal of Science	Three have been awarded National Medals of Science
Nat. Medal of Technology & Innovation	One has been awarded National Medal of Technology and Innovation
MacArthur Foundation Fellowships	Eleven have won MacArthur Foundation Fellowships
Albert Lasker Basic Medical Research Award	Two have won Albert Lasker Basic Medical Research Award
National Academy of Engineering	Five have been elected to the Nat’l. Academy of Engineering
National Academy of Sciences	30 have been elected to the National Academy of Sciences
Sloan Research Fellow	56 have been named Sloan Research Fellows

Talent Acquisition Center brings synergy to Labs' recruiting, hiring processes

SANDIA'S TALENT ACQUISITION CENTER is located in the IPOC building in Sandia Science & Technology Park, just outside the Eubank Gate in Albuquerque. This is the first view of Sandia that many potential new employees will experience.

Photos by Randy Montoya

By Bill Murphy

Sandia's got talent. We all know that. But with an anticipated spike in retirements and a corresponding hike in hiring over the next year and more, what's the best way to ensure that Sandia continues to bring the very best recruits into the Labs?

DURING THAT FIRST WALK to an interview room, the prospective Sandian and the hiring manager may get to know each other a bit.

Karen Gillings, Chuck Maheras, and Kim Maxwell and their teams have been mulling over just that question. The results of their efforts will be rolled out in April as the Talent Acquisition Center.

Karen is senior manager in Talent Life Cycle Org. 3550; Chuck is manager of Staff Planning, Hiring, and Relocation Dept. 3554; and Kim is manager of Student Interns, Recruiting, and Represented Hiring Dept. 3555.

The idea of the Talent Acquisition Center (TAC), says Karen, is to bring together into one locale all the people who are responsible for bringing new talent into the Labs.

"We expect the center to encourage synergy among our recruiting, hiring, and workforce planning functions," she says. "Proximity fosters synergy, and as we better integrate these functions, we will improve the way we're providing service to the Labs."

The Talent Acquisition Center is based in the IPOC building at Sandia Science & Technology Park just outside the Eubank Gate. The TAC is both a physical place — a suite of dedicated and specially equipped interview rooms — and a suite of new services intended to facilitate the recruiting and hiring process.

The interview rooms at the TAC are nicely appointed and equipped with in-room computers and white boards. There are rooms for individual one-on-one interviews and larger rooms where an entire interview team can meet and interview a job candidate. Additionally, computer kiosks are available for hiring managers and interview team members, who may find themselves spending several hours at a time at the TAC during the hiring process.

Says Chuck, "We want the interview rooms to have a high coolness factor, to convey to job applicants that Sandia is a first-class organization. We want these rooms to make a great first impression of Sandia, to reflect the excellence we strive for."

As HR Center 3500 Director Karen Gardner has said, Sandia's hiring and recruiting goal is to be perceived as "the employer of choice for the employee of choice."

If the TAC as a physical locale is significant, its suite of services is perhaps even more so. Over the past few years, the Staffing and Hiring group has periodically conducted Sandia Science and Engineering Expos (SEE). For those events, the hiring/recruiting folks would pre-screen perhaps 20 top individuals from a variety of disciplines and invite them en masse to Sandia. Hiring managers would be provided with resumes and invited to meet and interview these promising job candidates.

THE CONCEPT behind the Talent Acquisition Center is to bring together into one locale all the people responsible for bringing new talent into the Labs.

Now, the Talent Acquisition Center plans to take the SEE concept a step further, holding special hiring events that focus on a specific discipline, like computer science, for example.

These special hiring events, Karen says, will be coordinated with the Labs' campus recruiters to leverage their efforts. The recruiters — Karen calls them Sandia's best ambassadors — are largely drawn from the Labs' technical management ranks and are very knowledgeable about both the Sandia mission work and its hiring needs. The recruiters, working closely with schools they have some affiliation with (for example a school where they earned a degree), have been demonstrably successful over the years in identifying top prospects for employment.

And here's something hiring managers will appreciate, says Karen Gillings: Currently — and this has been the case for some time — managers have been required to complete two requisition forms to fill a new position, one for internal posting and another for external postings. With the soon-to-be-available PeopleSoft 9.0 HR software, hiring managers will need to complete just one requisition, having the option to stipulate the posting is internal, external, or both.

The one-stop interview rooms, the special hiring events that do some rigorous candidate prescreening, the streamlined requisition process — all of these efforts are aimed at taking some of the load off hiring managers' shoulders.

Sandia's hiring model today, says Karen, is what might be characterized as high-touch/high time commitment. That is, the process requires a lot of hands-on involvement by the hiring manager, with a concomitant commitment of time.

THE TALENT ACQUISITION CENTER features a number of dedicated interview rooms that can accommodate both one-on-one and group interviews. The rooms feature computers, whiteboards, and other resources.

"That model has worked very well for us historically," observes Chuck. "Over the years, we've been very successful in bringing in top talent to the Laboratories. In a robust hiring environment, though, the [high-touch/high time commitment] model doesn't work as well. Managers just don't have the time."

The Talent Acquisition Center aims to increase the efficiency of the hiring process by taking some of the time commitment off managers' calendars.

Karen and Chuck have met with hiring managers across the Labs to talk about the TAC and report an overall favorable response to it. Managers, says Karen, welcome the chance to streamline the hiring process and make it more efficient, but they also say they don't want to lose the up-close-and-personal experience of interacting with potential employees during the hiring process.

"We think this can provide both," says Karen. But, she adds, "There's nothing mandatory about using the Talent Acquisition Center services. Some managers will be early adopters and some will take a wait-and-see attitude."

Realization of the TAC, says Karen is the result of a partnership among HR, Facilities, and Computing. "The Facilities and Computing folks are the unsung heroes in this," she says. "They really helped make it happen."

Watch for announcements in the *Sandia Daily News* about the formal rollout date (likely in April) for the Talent Acquisition Center.

Mileposts

New Mexico photos by Michelle Fleming

Dorthe Carr
25 5527

John Noe
25 9328

John Cochran
20 6765

Laura Draelos
20 4849

Adam Jimenez
20 2552

Michael Mink
20 9538

Deborah Schutt
20 9312

Marty Shaneyfelt
20 1731

David Yocky
20 5937

Shirley Chavez
15 5633

Edith Hendrix
15 2733

Moo Lee
15 6711

Mary-Alena Martell
15 6786

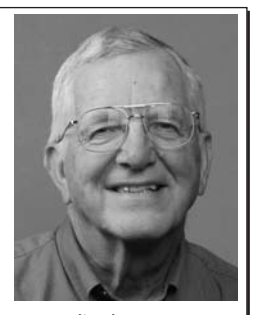
Marlo Maxson
15 5212

Veena Tikare
15 6774

Retirements

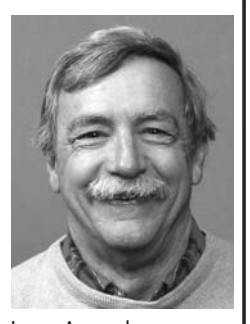
Retiring and not seen in the *Lab News* pictures: Linda Stefoin (3333), 25 years. Thomas Pratt (9336), 25 years.

Recent Retirees



Don Jelinek
46 5354

Andy Jones
34 5353



Larry Azevedo
32 2542

Gwen Pullen
31 9548

Charles Gabaldon
25 4126

Duane Landa
20 5231

Susan Bender
19 2501

Sandia News Briefs

Elaine Raybourn joins board of *International Journal of Game-Based Learning*

Elaine Raybourn, member of Cognitive Sciences & Applications II Dept.1434, was recently invited to serve on the advisory board of the *International Journal of Game-Based Learning* (IJGBL). The primary objective of IJGBL is to provide relevant theoretical frameworks and the latest empirical research findings in the field of game-based learning. It will include relevant publications from several fields including game design, instructional design, psychology, and educational psychology, in order to provide a comprehensive understanding of the cognitive, psychological, and emotional aspects of game-based learning.

Matthew Willis earns National Physical Science Consortium fellowship

Matthew Willis, a graduate student intern in Cognitive Science & Applications II Dept. 1434, has earned a National Physical Science Consortium fellowship.

The National Physical Science Consortium is a unique partnership among industry, government agencies, laboratories, and higher education. Established in 1987, the NPSC has one primary objective: Increase the number of qualified US-citizen PhDs in the physical sciences and related engineering fields, emphasizing recruitment of a diverse applicant pool of women and historically underrepresented minorities.

NPSC accomplishes this objective by assisting corporations, government agencies, and laboratories in awarding doctoral fellowships to outstanding US students.

Matt will begin his doctoral studies in the fall of 2010.

Martin Heinrich on 'Securing Our Future'

REP. MARTIN HEINRICH, D-N.M., joins Sandians for lunch at the Thunderbird Cafe. Heinrich addressed an audience of Sandians this week in the Steve Schiff Auditorium on the subject "Securing Our Future." He paid tribute to the many contributions the Labs has made to the nation's security since Sandia's founding more than 60 years ago. He also expressed confidence that Sandia will continue to have a vital role in the 21st century in providing science and engineering solutions to the nation's most pressing challenges. After his remarks, Heinrich joined employees at the Thunderbird Cafe, where he listened to Sandians' concerns and answered a number of questions.

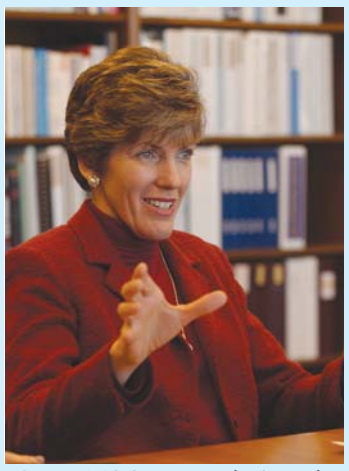
(Photo by Randy Montoya)

Joan Woodard retires after illustrious career that spanned all mission areas

Technical accomplishments, leadership roles, a voice of experience

By Neal Singer

Executive VP Joan Woodard is moving on from Sandia at the relatively young age of 57 to pursue another phase of life interests. She surprised many Sandians with her retirement announcement on Feb. 10.



JOAN WOODARD during her tenure as Executive VP to Labs Director Paul Robinson.

According to an editorial in the March 11 *Albuquerque Journal*, "Sandia National Laboratories is losing a valuable asset with the retirement of Joan Woodard in May."

As Sandia Executive VP and Deputy Laboratories Director, she directs activities supported by $1.35 billion of Sandia's annual $2.2 billion budget. These include programs in military technology, proliferation prevention, technology assessments, energy science, resources and conservation, infrastructure assurance, and homeland security.

Her previous roles have included Deputy Laboratories Director for Nuclear Weapons, Executive VP and Deputy Director for Sandia (as well as Chief Operating Officer), and VP of the Energy Information and Infrastructure Technology Division.

Executive leadership stood behind us

One of her proudest moments occurred in the 1970s, when she served as Sandia analyst to evaluate "a large solar proposal involving four industrial teams led by major defense/aerospace corporations," she says.

More than 100 Sandians were involved as technical leads. The challenge was to evaluate a newly developed solar central-receiver and a pilot plant demonstration project.

"We brought all the resources of the lab to the evaluation, which was challenging because of new technologies, materials issues, and overall performance questions. My job was the cost analysis, which, along with estimates of annual total power generation, were weighted as the most important factors. The evaluation involved modeling and simulation, laboratory tests, and engineering analysis.

"In the end, our recommendations were questioned because of political issues, but the executive leadership of Sandia stood behind us, stating that the federal government would be ignoring the technical evaluation and undermining the national program if they succumbed to the political pressure," Joan says. "Our recommendation was eventually accepted."

The experience, she says, "left a lasting impression on me in many ways."

Other projects she found exciting "included the redesign of our environmental cleanup projects for Sandia sites, which saved a significant amount of federal funds by accelerating the schedule for cleanup.

"Also, the post 9/11 response from Sandia was truly extraordinary to see. We made many critical contributions, starting with support to the sites of the tragedy, and then threat assessments and improvements for homeland security. Many of those activities continue today."

In her 35-year career at Sandia, Joan managed technology programs that included site characterization and remediation, radioactive material transportation, and mixed waste separation processes and materials. She led a materials support group in the Labs' national security and weapons programs and managed the Neutron Generator and Explosives Component Center.

Thinking bold thoughts

If she perceives a problem ahead for the Labs and US technology in general, it is the danger that the culture of risk-averseness could migrate from safety and national security practices, where they are key, into laboratory research that requires a willingness to accept the failures that may line the road to success.

"Innovation requires trial and error," she says. "But a fear of failure and its costs in money and time could influence researchers to try only 'safe' efforts that are more certain of small successes, rather than the breakthrough leaps in S&T that our country needs," she warns. "This is a trend that many national science and technology programs and institutions face. We do not have the analysis framework or the terminology to evaluate the net benefit of undertaking work that may fail.

JOAN WOODARD during the dedication of the MESA facility. Looking on is NNSA Administrator Thomas D'Agostino. (Photo by Randy Montoya)

"We must make sure people have time to even think the bold thoughts."

A positive national trend in which, she says, Sandia has mirrored US culture, is in policies to support women and parents in the workplace, such as increased time off for women giving birth and in accepting part-time hours and telecommuting as alternatives for mothers. "Studies have shown positive productivity results of incorporating these measures in the workplace," she says, "and Sandia has done so."

Having women in management, says Joan, helps provide alternative viewpoints in solving problems and an understanding ear to the problems of women and minorities. The current percentage of professional women in management at Sandia is 22.6 percent, almost mirroring what's coming out of the educational pipeline, she says, "though isolation still exists."

There have been improvements. Shortly after Joan joined Sandia/California in 1974, she recalls receiving an equal opportunity booklet that showed a 50-percent rise in the number of women members of technical staff. "The 50-percent rise was me!" she says.

Speculating on the next set of challenges that Sandia will help solve, she says, "I will be watching with anticipation the great contributions that Sandia will make. Sandians are selfless in their response to serving the nation in many national security areas. It has been inspiring to see Sandia's contributions over the past 35-plus years.

"We have had profound impacts on nuclear weapons safety and surety, on global security of nuclear materials, on energy technology, and many other areas of defense and national security we can't talk about.

"Everyone should remember: the nation is counting on you."

In the future, Joan plans to live by the advice she offers to the Labs. She will continue her public service by continuing to serve on the national Intelligence Science Board and on the board of directors of PNM Resources, as well as taking part in other national and community activities.

She also serves on the Defense Science Board Task Force on the Survivability of DoD Systems and Assets to Electromagnetic Pulse and Other Nuclear Weapon Effects. She has served on the Air Force Scientific Advisory Board, the Congressional Commission to Assess the Vulnerabilities of the US Infrastructure to EMP; the DSB Task Force on Nuclear Capabilities; as a study group member for the DSB study on Homeland Security; and as cochair of the special study of the National Security Space Program (NSSP) for the DoD and CIA. She also served on the National Academy Study on S&T for Countering Terrorism, resulting in the publication "Making the Nation Safer."

Voices: Barbara Roberts

"I don't know how she does it. She gets out of the office. She doesn't live here. She manages to make it to the gym every morning. You can go to her with a question or dilemma and the solution just comes out. She very calmly straightens things out and makes things simple. She's always thinking of the people angle. Rather than telling people precisely how she wants things done, she expects you to figure it out."

BARBARA ROBERTS

— Executive assistant Barb Roberts (and former EA to VPs Rick Stulen, Pace VanDevender, Bob Eagan, and Executive VP Al Romig)

Voices: Al Romig

I have always been impressed by Joan's thoughtfulness and deliberateness. Years ago, our work together in leading efforts to produce environmentally benign materials like lead-free solder had a tremendous effect across our research complex and in the private sector. It led to one of the most significant licenses Sandia has ever issued. As vice-chair of several Fall Leadership conferences and in her many responsibilities to the Laboratories, Joan has been smart, hardworking, gracious, and, always, elegant. She will be missed.

Al Romig

— Al Romig, Executive VP, Deputy Labs Director and Chief Operating Officer

Voices: Paul Hommert

For me Joan epitomizes dedication to Sandia's role in national service and a strong desire for the Lab to impact the nation's broader national security challenges.

Joan is also an outstanding leadership role model who always evidenced a keen sense of how living our values played out in day-to-day situations.

Paul Hommert

— Paul Hommert, Sandia Executive VP and Deputy Labs Director for Nuclear Weapons

Teach your children well

Sandia outreach efforts spark early love of science

Photos by Randy Montoya

Sandia has a longstanding tradition of fostering K-12 education in the community, especially education that enhances students' appreciation of math, science, and engineering. The Labs' Community Involvement Dept. 3652 supports a wide number of education outreach programs, including those pictured here. Photos, clockwise from top left, highlight activities at a Family Science Night event, the annual School to World in Albuquerque, Science Olympiad, School to World, another Family Science Night, and Science Olympiad. For more about Sandia's involvement in the community, see the special four-page center section of this issue.